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ABSTRACT

A greater understanding of psychological treatment can be achieved through an analysis of the language used by those participating in such treatment. Several conceptual aids are needed: (1) a theory about how language conveys meaning; (2) a model of language in psychological treatment; (3) reliable units of measure; and (4) since psychological treatment consists of thousands of words, a relatively rapid method of processing language. The language model of the psychological treatment process uses linguistic displays, the observable exchange of signals, an inferential process of attributing meaning to those signals, and observable outcomes by which to judge the attempted social influence. The Matrix Model of Case Grammar is used to empirically test the language model in observable units of measure by classifying the structures of natural language according to semantic relationships and stylistic properties. The Computer-Assisted Language Analysis System (CALAS) assists in testing the conceptualizations and in implementing the case grammar paradigm. This technological tool allows reliable and rapid analysis of the natural language of counselor and client across different theoretical approaches to psychological treatment. Semantic and stylistic attributes of language which convey meaning beyond their literal grammatical components (e.g., intentionality, influence) can be used to test hypotheses related to psychological treatment. (BH)

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Language Analysis and Policies of Psychological Treatment: An Overview

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The University of Tennessee

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Running head: Language and Policies

For a number of years we have conducted research designed to promote greater understanding of psychological treatment through an analysis of the language used by those who are participating in such treatment. Although our assumptions, conceptual work and methodology have been shaped by work in several areas such as linguistics, psychology and sociology, the research itself is a direct development from theorizing and earlier empirical investigations conducted by Pepinsky and his colleagues (see Pepinsky, 1966, 1970; Pepinsky & Karst, 1964; Pepinsky & Patton, 1971). This early work developed an interactive definition of psychological treatment (Pepinsky & Patton, 1971) which subsequently became the basis for a still developing model of counselor-client interaction and change (Patton, Fuhriman & Bieber, 1977; Pepinsky, 1974, in press; Pepinsky & DeStefano, 1983; Rush et al., 1974). See Figure 1 and discussion below.

This paper provides an overview of (a) the foundations for our work (b) a model of psychological treatment, and (c) a linguistic rationale and application of that rationale in the development of a Computer-Assisted Language Analysis System. A summary of previous work and a preview of the other papers in this symposium are also presented.

Foundations for the Work

Assumptions

Pepinsky and Patton (1971) have defined psychological treatment as . . . any encounter between persons in which one or more participants are inferred to be acting so as to elicit in - or through - one or more other participants a change in state (e.g., belief, attitude,

behavior, resources) (p. 4). In referencing the earlier work of Pepinsky, Weick and Riner (1965) these authors go on to explain that at least in the view of one other person (be it participant or spectator) the activities of psychological treatment are directed toward reducing what the changer defines as a discrepancy between an "existing and a desired state of affairs" (p. 4). Although with one exception (Davis, Meara & Moore, 1984), the papers presented in this symposium refer to data related to interactive discourse in counseling, we believe the work we are doing applies equally well to other forms of psychological treatment and spoken interaction (cf. DeStefano, Pepinsky & Saunders, 1982; Pepinsky, in press; and Pepinsky & DeStefano, 1983).

Psychological treatments share natural language as a primary resource, both for organizing counselor and client experience generally, (Patton, 1978) and more specifically for formulating desired psychotherapeutic policies and outcomes (Meara, Pepinsky, Shannon & Murray, 1981). By natural language we mean "patterns of sounds spoken by a collection of individuals where the sounds are commonly understood by the members" (Patton, Fuhriman & Bieber, 1977). In spite of the increasing abundance and excellence of the research literature on counseling and psychotherapy, the language of psychological treatment is often an unanalyzed resource in studying what occurs in therapy (cf. Zimmerman & Pollner, 1970; Kiesler, 1973).

We have assumed that language, as a system of signals and rules for coding those signals (cf. Schutz, 1967a, 1967b), conveys meaning

if and only if intended to do so by a user of language in a situated, social occasion. Persons' understandings of the social occasions in which they find themselves are provided in large part by the language they use to create and maintain those occasions in the first place. We are persuaded by Brentano (1955) and others that the phenomenon of meaning in language resides in the act of using it. It is a matter of the signals being presented to an experiencing person who then acts to cognitively work them into a re-presentation. In this way, language has several functions or conveys different kinds of meanings (Fiegl, 1949).

Thus, out attempts at an empirical statement of these processes rely upon a more general "representational theory of mind" (Chafe, 1970; Patton & Sullivan, 1980) characteristic of most contemporary cognitive psychologies. The research rests, therefore, on a committment to the existence of both cognitive processes and structures, but the former are assumed to central to the conveying of meaning in language. Meaning inheres in the act of using language. This construction of events direct our attention not to what is meant by what the participants in psychological treatment say, but to their use of language for saying anything. We have needed, then, several conceptual aids: (a) a theory about how language conveys meaning, (b) a model of language in psychological treatment, (c) reliable units of measure, and (d) since psychological treatment consists of thousands of words, a relatively rapid method of processing language.

Some Comments About Meaning

Modern approaches to the problem of meaning in language are exemplified in the study of syntactics, semantics and pragmatics.

Syntactical analysis is concerned with the structural properties of language, or the connections of linguistic signs with each others. It systematizes the rules for the formation of utterances. Semantics is the study of the symbolic or representation function of language. It analyzes the meaning of terms and expressions. Pragmatics refers to the investigation of the human uses of language, or the relation between language and behavior. It is interested in the expressive or appeal function of language.

Our own approach has been to try to distinguish among levels of meaning in language. The term levels as we use it refers to degrees of linguistic abstraction found in the different functions of language. Three functions of language, or levels of meaning, are of concern to us: naming, relating, and formulating. In short, the first function of language is the naming of things. The second function is the relating of things that have been named. The third function is the formulating of what has been named and related into an expression whose intended meaning is something to be understood within the context of a specific conversation among persons. In each case, we infer a process or course of cognitive action that occurs among observable events, the outcome of which is meaning.

For example, the first level of meaning in language is the process of naming things. The observable elements of this process are a sign, a significate, and an interpretor or interpretant (Percy, 1972). A sign is the name for a thing; a significate is the thing named, and the interpretant or interpretor is whatever binds them

together. At the level of words the interpretor is usually the person who couples the sign and significate into a unit of meaning. As we learned a language, we learned how to relate the sign WATER to the cool liquid found, among other places, in a glass on our high chair tray. The naming of something by the interpretor is therefore an abstraction from one's experiencing of that thing. Using the name conveys some of the meaning the thing has for the interpretor.

The second level of meaning, and the one which we have studied most often in our research to date, is the process of relating named things. The observable elements of this process are sign, sign and interpretor. In this case, the interpretor may be a relator, such as a verb phrase; the signs may be named things, such as noun phrases; and the unit of meaning can be identified grammatically as a clause (e.g., Name relator name, or Sarah drank the water.) Again, the elements of this process are observable and become a meaningful unit when the relationships among them can be communicated; that is, intended by one and inferred by another. Patton, et al. (1977), in specifying the process of linking named things, have identified the verb phrase as an "interpretive relator." The second level of meaning is an abstraction from the elements of the first level because the interpretive relator, or verb phrase, is used to impute a relation among them. The verb interprets how one name is to be understood in relation to another. When we say, Water is wet (Name relator name), we intend and are instructed to understand that wetness is a state that water possesses. We assume with Cook (1979) that short verb phrases have inherent semantic properties and are therefore critical

for the comprehension of language in use. Verb phrases, of course, do not name anything; instead they function to inform us how to understand what is named.

The third level of meaning in language is the process of formulating. Formulating is the step or process that relates the purely syntactical and semantical features of language to something beyond the language itself (cf. Patton, in press; Pepinsky, in press). The observable elements of this process are the name-relator-name units, the discourse (a meaningful conversation or text) and an interpretor. When persons talk to each other in everyday life it is generally understood in common that they are not ordinarily speaking about language. In this case language is, for them, an unanalyzed resource or method for deciding what it is they are talking about. With the language, persons formulate for themselves a more or less meaningful discourse. In this way, names and relations among names are intended by persons as communicative displays with which the meaning of their discourse is to be formulated. The third level of meaning is an abstraction from the second level in that formulating imputes a relation between the language as a system of linguistic signals and the meaning of those signals when used in a given social situation. When persons formulate their conversation with each other, they share what they mean to be saying to each other by the language they use. Increased sharing of meaning increases communication.

Two further comments may be made about our theory of meaning in language. First, the three levels of meaning in language which we have distinguished here can be characterized in terms of their

generality. At the level of naming, a name symbolizes a single thing or class of things. At the second level, two or more single things from level one are entailed by imputing a specified relation or relations among them. In turn, at the third level the process of formulating entails the linguistic units of names and their relations and ostensive meanings by imputing a relation between them; that is, formulating is a way of using language to create a meaningful conversation among persons. Thus, for example, naming is more limited in scope than is formulating, it conveys less meaning.

Second, our theory makes it possible in principle to inquire about meaning at each level. We have concentrated our work thus far at the second level of meaning in language, the relating of names with other names. In doing so we have used case grammar (Cook, 1979) to aid us in making these units of meaning evidential. We have learned a great deal about the way counselors and clients instruct each other to understand how one name or word is to be seen in relation to another. The verb phrase as an interpretive relator has become for us a clue to how the counselor and client are formulating their discourse. We will have more to say about this later.

For now, the inferred processes of naming, relating and formulating are informative displays. An exchange of these signals or informative displays enables participants to achieve a sense of connected discourse (Pepinsky & Patton, 1971; Patton, Fuhriman & Bieber, 1977; Pepinsky, 1974).

Psychological Treatment and Language: A Model

Based on our assumptions and prior work, we constructed a model of the psychological treatment process which has been thoroughly discussed elsewhere (Rush et al., 1974; Pepinsky, 1974; Pepinsky, in press; Patton, Fuhriman & Bieber, 1977; Pepinsky & DeStefano, 1983, Patton & Meara, in press). We maintain that counseling is a process of social influence which is interactively persuasive (Pepinsky & DeStefano, 1983). During this process counselor and client mutually work toward concerted actions and toward a change in belief and/or behavior in order to reduce the discrepancy between an observed and a desired state of affairs. Language is the primary medium through which attempts at social influence occur. The model (See Figure 1) sets forth the contribution of linguistic informative displays, as defined above, to the dynamics of change and concerted action in psychological treatment.

The model specifies: (a) assumptions about prior knowledge of the participants, (b) the observable exchange of signals, (c) an inferential process of attributing meaning to these signals, and (d) observable outcomes by which to judge the attempted social influence. One measure of successfully communicated social influence might be provided by evidence of stable concerted actions between participants. Concerted actions can be operationalized, for instance, as convergence (Pepinsky & Karst, 1964) and/or tracking (Jaffe, 1964) between the participants in the similarities and frequencies of specific semantic or stylistic structures (Meara, Shannon & Pepinsky, 1979; Meara, Shannon & Pepinsky, 1981; Bieber, 1978; May, 1977;

Oster, 1979) or discussion topics (Patton, 1969).

Case Grammar as Informative Display

Our conceptualization of meaning and psychological treatment could not be empirically tested without some paradigm of language that could yield observable units of measure. One of the classic problems in psychology is choosing an appropriate unit of measure for studying the phenomenon in question. Units of measure seem particularly difficult to specify when investigating something like the discourse of counseling or other forms of spoken interaction in natural settings. One or more of several levels of analysis may be appropriate (cf. Pepinsky, 1974). As we struggled with our conceptualizations about counseling, we also struggled with problems related to choosing appropriate units of measure. To transform our work from the theoretical to the empirical realm a means of operationalizing our linguistic informative displays was needed. The paradigm we adopted and adapted to our work, the Matrix Model of Case Grammar, was developed by Cook (1979) and relies heavily on the scholarship of Chafe (1970) and Fillmore (1968) as well as other pioneers in this area of linguistics (e.g., Anderson, 1971). Case grammar classifies the structures of natural language according to the semantic relationship between what are traditionally called nouns and verbs (Reed, 1983).

The Matrix Model of Case Grammar postulates that there are essential and inherent semantic relations (such as state, process, or action) in the deep structure of English language. It is these relations that render language meaningful and allow participants to

exchange signals in a rule governed manner, and govern the processes of: (a) naming, (b) relating named things, and (c) formulating. In particular, the Matrix Model of Case Grammar provides an excellent tool to investigate our second postulated theory of meaning that of relating named things. Simply, from a case grammar perspective, the named things are noun phrases and the relators are verb phrases, conjunctions, and prepositional or adverbial phrases. For the most part, the essential relations in utterances (e.g., state or action) are determined by the inherent semantic features of verb phrases. The verb phrase then becomes the major "interpretive relator" and its inherent semantic features determine the relationships of the noun phrases (or named things) to it and to each other. The named things (the noun phrases) and the relators (verb phrases, etc.) are designated case grammar descriptions which characterizes the functions of each in the utterance. These descriptions constitute a metalanguage which we use to characterize and measure semantic attributes of informative displays. For example: The hunter killed the bear. Killed is an action relator, hunter is assigned a case role of agent, and bear, a case role of object. Case grammarians believe that these semantic features describe the "deep structure" of language utterances. Analyses of these semantic features allow for descriptive and comparisons of the discourse across speakers, topics, or segments.

A second attribute of language that can be inferred from a case grammar analysis is that of "stylistics." A speaker's style is

concerned more with how something is said rather than what is intended. It is thought to be representative of "surface structure." As Wyman (1983) notes, it is virtually impossible to separate the semantic from the stylistic at the pragmatic level since both contribute to meaning. However, we have found it useful to measure and to talk about stylistics and semantics separately.

To operationalize the notion of stylistics we began with the clause. By definition, the clause exists as the basic structural unit of semantic information as it contains one and only one verb phrase or "essential relator" (Meara, Pepinsky, Shannon, Murray, 1981). Clauses can be classified as main or subordinate and contain phrases and words. Such grammatical units and various configurations of them provide the basic units of measure for computing or describing the stylistics of our linguistic informative displays. The measures we have used most often are verbal productivity (e.g., number of clauses) and stylistic complexity (e.g., the number of clauses in relation to the number of main clauses). The stylistics of the discourse can also be described and compared across speaker, topic or segment.

The Computer-Assisted Language Analysis System

To assist us in testing our conceptualizations and in implementing the case grammar paradigm in our work we sought out computer technology. What was intended as a slight digression from our task became a seven year crusade that resulted in the development of the Computer-Assisted Language Analysis System, known as CALAS (Rush et al., 1974; Pepinsky et al., 1977; Young, 1973; Meara, 1976). CALAS, based on our

adaptation of the Matrix Model of Case Grammar, includes a set of computer programs and an algorithm for translating texts in the English language into structural equivalents. The system analyzes verbatim text or discourse in three distinct sequential operations (e.g., see Meara, Shannon & Pepinsky, 1979). After each operation, the system requires human editing to increase the accuracy of the input into the next phase. The final output consists of the semantic and stylistic measures of informative display. For example, the discourse is divided into clauses for each speaker, the verb phrase is given a verb type assignment (e.g., state or action) and the noun phrases case role assignments. The total words, phrases and clauses are computed for each speaker and for the entire interview.

This technological tool enables us to analyze reliably and relatively rapidly the natural language of client and counselor across different theoretical approaches to psychological treatment. From such analyses we have been able to describe: (a) the relative frequencies with which clients and counselors use semantically different types of verbs during an interview or series of interviews, (b) the extent to which such verb type usage differs between the participants, (c) the change in frequency of usage over time, and (d) the extent to which certain stylistic features of each participant's language are related to the other's and to measures of cognitive complexity.

To summarize our principal argument: We have said certain structural features of language are minimum units of informative

display, i.e., they have semantic and stylistic attributes which convey meaning beyond their literal grammatical components. These attributes provide a means for characterizing spoken interactions and investigating such phenomena as intentionally, influence, concerted actions and the like. The CALAS enables us to analyze the discourse more efficiently and reliably and test hypothesis related to psychological treatment.

Prior Work

Hypotheses about what is occurring in a given interaction have been generated and tested from: (a) the psychological treatment model; (b) case grammar assumptions, and (c) rationales related to specific procedures and theories of psychological treatment. For example, based on the model of treatment as social influence, one would expect the less influential person to track the informative displays of the more influential person as the interaction progresses. Based on the paradigm of case grammar and the semantic and stylistic features of discourse, one would predict that tracking or convergence will become evident sooner in the treatment process when measured stylistically rather than semantically. Some preliminary work has provided warrant for both of these assumptions. Bieber, Patton and Fuhriman (1977), in analyzing data from the 1st, 11th, and 25th interviews of a counselor-client pair, found no evidence of client-counselor semantic tracking in the first interview, but such tracking was found in the 11th and 25th interviews. Meara, Shannon and Pepinsky (1979), using excerpts from the film series "Three Approaches to Psychotherapy" found evidence for client-counselor

stylistic tracking in all three initial interviews. In contrast, Meara, Pepinsky, Shannon and Murray (1981) using the same data set found no evidence for semantic tracking in any of the initial interviews.

Based on the model and the assumptions of case grammar, one would expect a CALAS analysis to provide a description of the discourse which could provide a sound basis from which policy can be inferred. Work in this area has also been promising. For example, in further clarifying and expanding the model, Pepinsky and DeStefano (1983) describe counseling, teaching and the like as particular examples of interactive treatment. They interpret interactive talk during treatment as organizing behavior and use as an illustrative example, a case study in which DeStefano, Pepinsky and Sanders (1982) analyzed the discourse rules for literacy learning in a desegregated first grade classroom. The pattern of interactive talk between teacher and students reveals the ground rules for the interaction which are conceptually defined as policy. The analysis of the case study data revealed that the teacher not only made policies, but determined how they would be implemented. The authors conclude that the treatment was "manifestly unilateral" since it was the teacher who exercised the greater amount of social influence.

Further descriptive work has included elements of the model as a perspective for conducting a stochastic process analysis of interactive discourse (Friedlander & Phillips, in press) to suggest how client and counselor establish a working relationship (Patton, in press) in early interviews. The results of this analysis of 312

conversational turns from 14 dyads indicated "the reciprocal influence of client and counselor in establishing a common understanding of the problem and in defining their relationship" (M.S., p. 2). In Pepinsky and DeStefano's terms, these interactive treatments were bi-lateral.

Although this descriptive work is important and needs to be expanded, the potential pragmatic contribution of our work depends on our ability to establish conceptual and empirical links between our scheme of things (i.e., model of treatment, language paradigm, and method of analysis) and other "established" events of psychological treatment. Some such links are suggested from the predictions which follow.

1. Different techniques of therapeutic intervention and different intentions by participants will have different patterns of linguistically informative displays.

2. The pattern of a client's linguistically informative display will change following the implementation of a specific therapeutic intervention.

3. Counselors with linguistically different display patterns will be perceived differently by observors.

4. Counselors of different experience levels will exhibit different linguistically informative displays.

The initial work that has been done to forge these conceptual links has had some mixed results, but in the main continues to look promising and provides the basis of this symposium. Wycoff, Davis, Hector and Meara (1982) found that counselors judged to be low

empathic responders differed from counselors judged to be high empathic responders in that they used significantly more inherent semantic relators denoting action and were verbally more productive. There were no differences between the groups, however, in the percentage of state verb usage or the complexity measure of information block length.

The papers that follow represent investigations designed to provide better descriptions of interactive treatments and preliminary data concerning the relationship between semantic and stylistic variables and other "established" events of psychological treatments. Davis, Meara and Moore (1984) looked at an analog depicting counseling supervision and compared the linguistic properties of statements by the trainee which are labeled resistant and non-resistant. Warden and Wycoff (1984) compared the linguistic displays of counselor low, medium and high experience levels when instructed to facilitate a client's expression of feelings. In a somewhat novel twist, Hector, Wyman and Meara (1984) manipulated counselor language and related these manipulations to subjects' perceptions of the social influence of the counselor. Reed, Hector and Meara (1984) replicated this study with a population that was believed to be more sophisticated about counseling than the one used by Hector et al. (1984). Kidder (1984), too, asked clients to manipulate their language by varying their responses in 10 minute periods from empathic to non-empathic over the course of the interview. His presentation will address some of the issues related to data analysis that have plagued our work from the beginning.

We plan further work in language analysis of psychological treatment. Eventually, we plan to move beyond the CALAS, as there is new ground to break in language analysis. For now we invite your comments and discussion of our work to date.

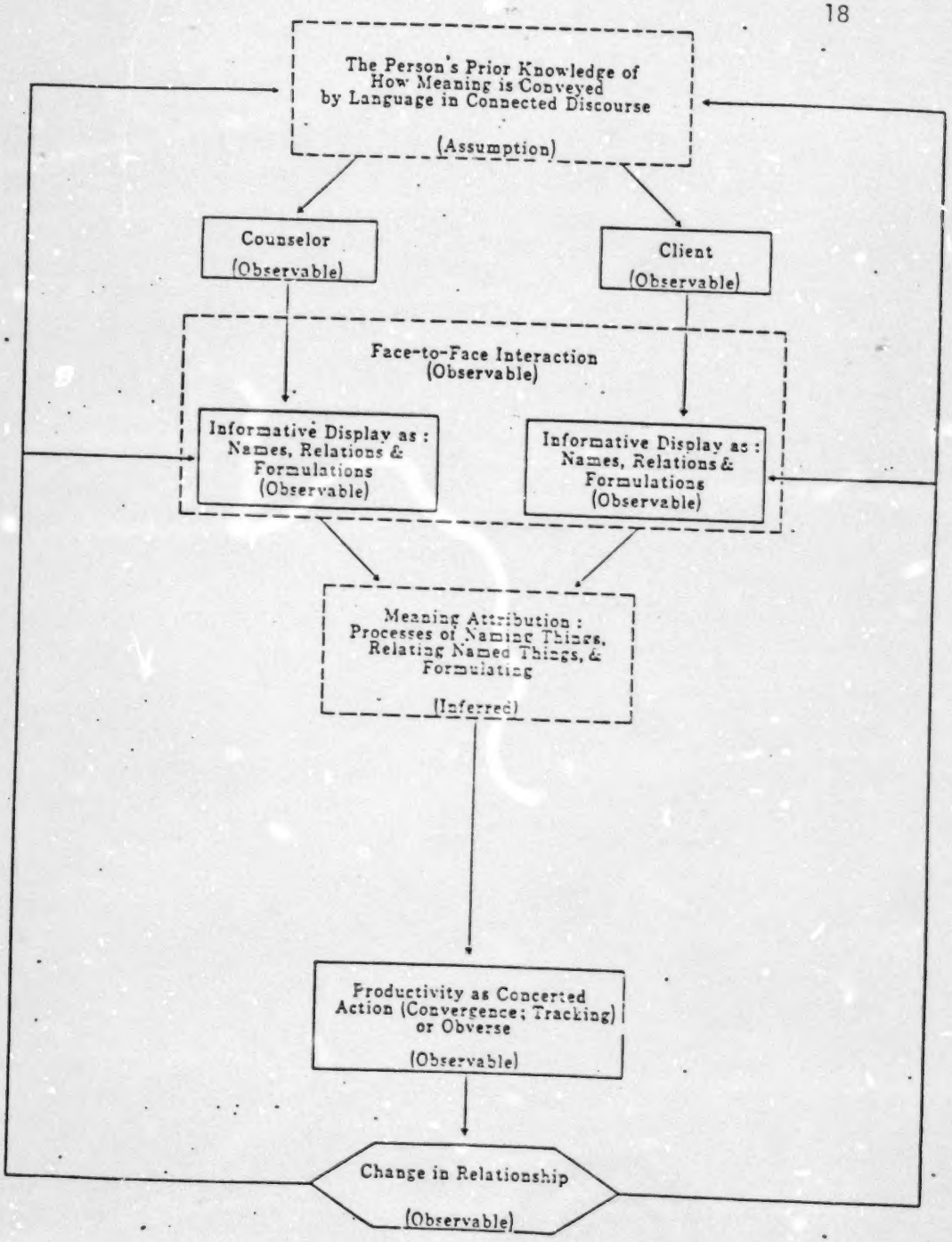

Figure 1. Model of counselor-client interaction and change via natural language (Adapted from Patton, Fuhriman and Bieber, 1977; Pepinsky, 1974; Rush et al, 1974; cf. Pepinsky & DeStefano, 1983).

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